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viewed the advance of the science during the past year. He pointed out the constantly accumulating evidence to the continuity of human culture from the earliest period, and the growing certainty that the progress of the race has been constant. The importance of establishing an ethnographic bureau for the United Kingdom, analogous to our Bureau of Ethnology, was strongly emphasized, and the progress of the Ethnographic Survey was mentioned in complimentary terms. His closing remarks on 'The Problem of Transmission' are as follows:

"It has appeared to me that there is, in the minds of anthropologists, a growing tendency to discountenance inquiries into transmission, and to consider phenomena related to a particular stage of civilization arrived at by the operation of general laws, rather than as arising from communication between the people."

There is no doubt of this.

THE LUMBAR CURVE.

THE study of the lumbar curve as a point in comparative ethnic anatomy has received some attention from somatologists, but the first examination of it among the native American tribes is that by Dr. George A. Dorsey, in the *Bulletin of the Essex Institute*, Vol. XXVII. His specimens were drawn from tribes of the northwest coast, the Iroquois, the Ohio mounds and Peru. His conclusions are that the index of the curve is an important means of determining sex and that "it bids fair to become one of the most valuable ethnic tests known in determining the physical superiority or inferiority of any tribe or race."

Dr. Dorsey's tables and measurements are most carefully presented, and the subject is set forth with great clearness. It would appear, however, from the remarks of Cunningham which he quotes (p. 59) that these variations are due largely to

habits of life, and if so this index could be only a secondary ethnic test, as such habits vary so widely in the same community.

NATIVE AMERICAN MYSTICISM.

A SYMPATHETIC but far from exhaustive study of this subject has lately appeared from the pen of Dr. L. Kühlenbeck (*Der Occultismus der nord-amerikanischen Indianer*, pp. 60, Leipzig, W. Friedrich). He points out, with entire correctness, that not only the religious observances, but the actions of the social and individual life among the Indians are constantly guided by spiritual agencies or occult forces. He compares their mental position in this respect with that of Goethe, who, in his conversations with Eckermann, so often referred to the 'demonic' powers which control events—surely an honorable comparison.

The author analyzes the mental experiences of the 'medicine men,' and quotes a number of instances of their strange powers and the processes by which these are acquired. Though the essay is lacking in the critical caution desirable in treating so obscure a subject, it is suggestive and composed in an appreciative spirit.

D. G. BRINTON.

UNIVERSITY OF PENNSYLVANIA.

SCIENTIFIC NOTES AND NEWS.

PROFESSOR J. WILLARD GIBBS, professor of mathematical physics at Yale University, has been elected a foreign member of the Royal Society.

M. BONNIER has been elected member of the section of botany of the Paris Academy of Sciences in the room of the late M. Trécul, receiving 42 votes of the 57 cast.

THE portrait of Lord Lister, painted by Mr. W. W. Oules, was presented to the Royal College of Surgeons on March 29th.

It is proposed to celebrate the sixtieth anniversary of Sir George Stokes' connection with the University of Cambridge by the presenta-

tion of a bust to be executed by Mr. Thornycroft. Sir George Stokes has for nearly fifty years been Lucasian professor of mathematics in the University.

THE bust of Sir Henry Acland, formerly Regius professor of medicine at Oxford, has been placed in the court of the University Museum.

SIR WILLIAM DAWSON the eminent geologist, late principal of McGill University, and Lady Dawson celebrated their golden wedding on March 19th.

THE library of the German Astronomical Society has been purchased by a number of citizens of Bamberg and presented to the observatory.

MR. HENRY M. PAUL, assistant astronomer at the U. S. Naval Observatory, and Mr. George A. Hill, computer in the office of the *Nautical Almanac*, have been appointed professors of mathematics in the navy.

THE members of the New York Zoological Society have learned, with regret, of the death of Dr. A. A. van Bemmelen, late director of the Zoological Garden of Rotterdam. Besides the loss to zoological science in general, his death is a loss to the New York Zoological Park in particular. From the inception of that enterprise Dr. van Bemmelen responded most heartily to all calls made upon him for information and advice, and forwarded to the Society many closely-written pages of details regarding the status of the garden that has been developed so successfully under his direction. Although the Rotterdam garden is not quite so large as some of the other European gardens, it is very beautiful and attractive, and the highest praise that could be bestowed upon Dr. van Bemmelen is found in the statement that for more than twenty years he has been its director. The first of the four great flying cages in Europe is the one designed and constructed by him. The most recent lion house in Europe is the one erected by the Rotterdam society, under his direction, in 1894.

THE funeral of Professor Sylvester took place on March 19th at the cemetery of the West London Synagogue of British Jews. The Royal Society and the London Mathematical Society

were represented by Professor Michael Foster, Major Macmahon, Professor Forsyth, Professor Elliott, Dr. Hobson, Professor Greenhill, Mr. A. B. Kempe and Mr. A. H. Love.

WE regret to announce the deaths of Dr. Joseph F. James, known for his writings in paleontology, botany and geology, who died of pneumonia at Hingham, Mass., on the 29th of March; of M. Antoine T. d'Abbadie, sometime President of the Paris Academy of Sciences, known for his works on geographical exploration and on geodesy; of Dr. Robert Hogg, the horticulturalist; of Mr. John Biddulph Martin, President of the Royal Statistical Society; of M. C. Contejean, of the Pasteur Institute, and of C. F. Wiepken, for sixty years director of the Oldenburg museum.

WE learn from *Nature* that a meeting of presidents of various scientific societies in London was recently convened by the President and officers of the Royal Society to consider whether any, and if so what, steps should be taken to commemorate the sixtieth year of Queen Victoria's reign. It was unanimously resolved "That a fund to be called the Victoria Research Fund be established, to be administered by representatives of the various scientific societies, for the encouragement of research in all branches of science." The President of the Royal Society has communicated this resolution to the scientific societies, with a letter asking whether support would be given to it.

IN addition to the nominations made by the Council of the British Association for presidents of the different sections at the forthcoming meeting at Toronto, announced in the issue of *SCIENCE* for February 12th (p. 251), Mr. J. Scott Keltie has been nominated as president of the geographical section. Evening lectures will be given by Professor Roberts-Austin and Professor John Milne.

THE Museums Association of Great Britain meets this year at Oxford, from June 29th to July 2d, under the presidency of Professor Ray Lankester. Men of science wishing to attend or present papers should apply to the secretaries, H. M. Platnauer, the Museum, York, and E. Howarth, the Museum, Sheffield.

THE eleventh annual meeting of the German

Society of Anatomists will be held at Ghent from April 24th to 27th, under the presidency of Dr. Waldeyer.

It is stated in *Nature* that the Comité d'Organisation of the seventh International Geological Congress, to be held at St. Petersburg from August 29th to September 4th, have received so many applications from persons who are not geologists, and yet wish to obtain free railway tickets and to participate in other advantages arranged by the Russian government, that they have issued a special circular stating that the facilities offered are intended only for geologists. Excursion tickets will only be granted to persons who are known by their contributions to geology. Even with this restriction, the meeting promises to be a large one, for more than six hundred geologists have applied for tickets.

THE American Medical Association will meet in Philadelphia, beginning on June 1st. The American Medical Publishers' Association meets on the preceding day. There are said to be published in America 275 medical journals, of which 10 are issued weekly, 11 semi-monthly, 225 monthly, 6 bi-monthly, and 23 quarterly.

ACCORDING to the New York *Medical Record* the next course of ten lectures instituted by the late Professor Thomas Dent Mütter, M. D., LL. D., on 'Some Point or Points in Surgical Pathology,' will be delivered in the winter of 1899-1900, before the College of Physicians of Philadelphia. The compensation is \$600. The appointment is open to the profession at large. Applications stating in full subjects of proposed lectures must be made before October 1, 1897, to the committee on Mütter Museum, John H. Brinton, M. D., chairman, northeast corner of Thirteenth and Locust streets, Philadelphia, Pa.

THE John Crerar Library of Chicago was opened to the public on April 1st. It will occupy rented rooms until the accumulated income from its endowment, which is \$2,500,000, will suffice to pay for the erection of a building. The library is devoted especially to the natural, physical and social sciences and their applications.

It is expected that the New York Legisla-

ture will pass the bill recommended by Governor Black appropriating \$1,000,000 for the preservation of the Adirondack forests.

MR. FRYE has introduced a bill in the Senate creating a National Academy. The bill provides that the Academy shall be devoted to the accumulation and preservation of new discoveries and the perfection of the arts and sciences. The Academy would have five divisions: First, laws and literature; second, inscriptions, archaeology and belles-lettres; third, sciences; fourth, fine arts; fifth, moral and political science. The Academy would have one hundred members and fifty foreign associate members, and in addition 100 American and 200 foreign corresponding members.

A NATIONAL German exhibition 'For the Hygiene of Childhood at Home and at School' is to be held in Breslau at the end of May.

THE following items are taken from *Natural Science*: The collections of Gustav Nachtigal from the west coast of Africa, made during 1894-95, are now exhibited in the Berlin Museum of Ethnology. The Berlin Museum für Naturkunde has received from the island of Ralum a collection of the flora and fauna made by Dr. Dahl. Mr. H. J. Ernst, an apothecary of Iceland, has presented to the State Museum in Stockholm a valuable collection of Icelandic minerals. Mr. and Mrs. Theodore Bent, the archaeological explorers, have returned from a successful expedition in Socotra. Mr. J. Whitebeard has been investigating the highland fauna of the Philippines, where he obtained a huge fruit-pigeon at a height of 6,000 feet. Mr. C. W. Andrews, of the geological department of the British Museum, has received leave of absence for nine months in order to investigate the natural history of Christmas Id.

THE Director of the United States Geological Survey has just addressed to the geologists, the topographers and all authors in the Survey a circular on the use of 'Quadrangle,' the new designation for the quadrilateral land units of the government surveys. In prosecuting the topographic and geologic survey of the United States the Geological Survey divides the land into small quadrilateral units, bounded by meridians and parallels, and from these result

atlas equivalent sheets, the paper dimensions of which are 20 by 16½ inches. The map units, the director explains, are appropriately called *sheets*, but no name has been uniformly applied to the land units, in the way, for example, in which *section* is used in the nomenclature of the General Land Office. The custom has arisen of applying the name *sheet* to the land unit also. The geologist and topographer ordinarily speak of surveying a 'sheet.' This usage is objectionable for obvious reasons. Hereafter, therefore, according to the new practice, the word *sheet* will be restricted to the designation of the map unit. Whenever the land unit, strictly speaking, *i. e.*, a quadrangular portion of the earth's surface delimited by the meridians and parallels of an atlas sheet, is referred to, the word *quadrangle* will be used (*e. g.*, 'In the southeastern corner of the quadrangle'); and in those cases where a word is desirable which does not connote definite demarcation, or which more strongly connotes land, the word *district* will be used (*e. g.*, 'The investigation of the district'). The use of these two words (*quadrangle* and *district*) in any other connection is to be avoided, recourse being had to the various synonyms, such as area, tract, region, territory, etc. The definite usages proposed will doubtless be a decided gain for clearness and uniformity.

MR. WOLCOTT, of Colorado, has presented in the United States Senate a memorial from the Legislature of Colorado praying for a generous provision to enable the United States Geological Survey to continue and extend the examination of the metalliferous districts of the States and Territories and to carry forward the needed surveys. Provision is also urged for the prompt publication of the Survey's work, much of the work depending for its value upon early publication. There is a strong feeling, especially throughout the mining regions of the country, that the government should do more for the survey of the mining districts and the development of the mineral resources, as is evidenced by the various propositions that were presented at the last regular session of Congress. Though much of the work of the Survey has been rendered less useful by delays in publication, the past two or three years have witnessed a marked improvement in this regard. A number of re-

cent publications have been published with gratifying promptness, notably among them being the Seventeenth Annual Report of the Director, just issued.

WE have received several further replies from scientific instrument makers in regard to the imposition of a tax on scientific instruments imported for educational institutions. Mr. J. G. Gray, President of Queen & Co., Philadelphia, writes that "it is possible from a narrow point of view that the proposed abrogation of the duty-free clause in the tariff law might benefit makers of apparatus in the United States." "But from the broader standpoint of the welfare of educational institutions in general and the advancement of science, it would be a retrograde step and a serious misfortune if it should become impossible to import free of duty, for the use of such institutions, the class of instruments and apparatus which they are now accustomed to import. Whilst we are manufacturers, we cannot but recognize that the narrow and possibly supposed interest of a few makers of scientific apparatus should not weigh against the wider and unquestioned interests of those engaged in education and original research and whose labors return many times over to the commercial community any advantage which may be granted them."

CHARLES SCRIBNER'S SONS have in press a work on *Philosophy of Knowledge*, by Professor G. T. Ladd, Yale University, which will be of interest both to men of science and to students of philosophy. The subjects treated may be seen from the titles of the chapters, which are as follows: I., The Problem; II., History of Opinion; III., History of Opinion (continued); IV., The Psychological View; V., Thinking and Knowing; VI., Knowledge as Feeling and Will; VII., Knowledge of Things and Knowledge of Self; VIII., Degree, Limits and Kinds of Knowledge; IX., Identity and Difference; X., Sufficient Reason; XI., Experience and the Transcendent; XII., The 'Implicates' of Knowledge; XIII., Scepticism, Agnosticism and Criticism; XIV., Alleged 'Antinomies'; XV., Truth and Error; XVI., Ethical and Æsthetical 'Momenta'; XVII., The Teleology of Knowledge; XVIII., Knowledge and Reality;

XIX., Idealism and Realism; XX., Dualism and Monism; XXI., Knowledge and the Absolute.

NEW volumes in the Contemporary Science Series, edited by Mr. Havelock Ellis and published in England by Walter Scott and in America by Charles Scribner's Sons, will include 'The New Psychology,' by Dr. E. W. Scripture; 'Psychology of the Emotions,' by Professor Th. Ribot, and 'Hallucinations and Illusions,' by Mr. E. Parrish.

THE California Academy of Sciences announces important changes in its publications. In addition to occasional extended monographs, the proceedings will be issued in several wholly independent divisions or parts; each division to be devoted to a single branch of science, or to a group of closely related sciences. There will be begun at once three divisions, viz.: for geology, for botany and for zoology, and from time to time such others as may be demanded, and as the finances of the Academy will permit. It is probable that a mathematico-physical division will be added in the near future. Papers will be issued separately and will be distributed immediately. Each title page will bear date of issue and the number in the volume of the division to which the paper belongs. The divisions will be formed in volumes, chiefly according to convenience, and with but incidental reference to time, each volume containing generally about 400 to 500 pages. The Publication Committee, charged with the general supervision of all publishing done by the Academy, consists of Professor William E. Ritter, Chairman, first Vice-President of the Academy; President David Starr Jordan, President of the Academy, and Mr. G. P. Rixford, Recording Secretary. This committee will be supplemented by editorial committees in the different departments, as now constituted, Professors Andrew C. Lawson and James Perrin Smith in geology, Professors W. R. Dudley and W. A. Setchell in botany, and President David Starr Jordan and Professor William E. Ritter in zoology. We find in the recent proceedings of the California Academy very important contributions to our knowledge of the fauna, flora and geology of the Pacific Coast,

and the subjects on which papers are expected in the near future show great activity in scientific research in California.

ACCORDING to the London *Times* Mr. H. N. Thompson, Assistant Conservator of Forests in Burma, in a recent report on the forests of the Hukong valley and the Upper Namkong basin, in Upper Burma, devotes a section to the production of rubber in that region. It appears that in the Hukong valley the rubber tree is not a gregarious one; sometimes a family group of four or five trees may be seen, but, as a rule, a mature tree is found every 200 or 300 yards in the richer forests. When the tree is surrounded by dense shade it grows to enormous heights in order to get at the light, and some of those examined by Mr. Thompson were the largest trees of any species he had ever seen. In the thick forest he found no seedlings in the ground; they were invariably growing at a great height on other trees and sending their roots down towards the ground, so that the roots finally formed great supports on which the main trunk rested, while the original tree, on which the seedling was a parasite, was destroyed.

REUTER'S agency reports that the Egyptian Council of Ministers has approved of the appointment of Professor Forbes, the electrician, to examine the Nile cataracts and prepare an exhaustive report regarding the best methods of utilizing the water power available for generating electricity. Professor Forbes will commence his studies in the autumn.

THE report of the Meteorological Council to the Royal Society for the year ended March 31, 1896, has been issued as a Blue-book. We learn from the London *Times* that the report is divided into four sections: (1) Ocean Meteorology, (2) Weather Telegraphy, (3) Climatology, and (4) Miscellaneous. With respect to weather telegraphy and forecasts, it is stated that the daily weather report appeared regularly, and there was a regular display at the Meteorological Office in London of the state of the weather on British coasts. It is stated that of the total number of forecasts 55 per cent. were complete successes, 25 per cent. partial successes ('partial' meaning 'more than half') 14 per cent.

partial failures, and 6 per cent. total failures. The total percentages of successes was therefore 80. The total amount voted by Parliament during the year was £15,300, and £769 became available in addition. The expenditure was £15,187, showing a decrease of £25 as compared with 1894-95.

UNIVERSITY AND EDUCATIONAL NEWS.

It is reported in the daily papers that the subsidy given by the state to the University of California will be doubled, being hereafter \$240,000 annually. Mr. Levi Strauss, of San Francisco, has endowed twenty-eight undergraduate scholarships in the University, and seven graduate scholarships, of the value of \$250, have been endowed by other donors. The number of students in the University has increased from 918 in 1891-2 to 2,250 in the present year. It is again stated that the University will receive gifts amounting to \$5,000,000 for buildings, of which sum \$1,200,000 is promised by Mrs. Hearst, of San Francisco.

CHICAGO UNIVERSITY has received a gift of \$225,000 from Mrs. Mary Esther Reynolds in fulfilment of a pledge made nearly five years ago.

DR. HUGO MÜNSTERBERG, professor of experimental psychology in Harvard University, will return to Cambridge at the opening of the next academic year. He has hitherto retained his position in the University at Freiberg, and during the past two years has been in residence at that University.

DR. HEINRICH RIES has been appointed to the Barnard Fellowship of Columbia University. He will undertake the study of the physical properties of clays.

PROFESSOR WILLIAM JOHN SOLLAS, F. R. S., D. Sc. Camb., Hon. LL. D., of Dublin, professor of geology in the University of Dublin, has been elected to the chair of geology at Oxford, vacant by the death of Professor Green. According to the London *Times* Professor Sollas was a foundation scholar of St. John's, Cambridge, and obtained a first class in the natural science tripos. In 1882 he was elected a Fellow of St. John's, and in 1889 was made a F. R. S. In 1878 he was awarded the proceeds

of the Wollaston Endowment for his researches in fossil sponges, and in 1893 the Bigsby Medal for geological and paleontological investigations. Antecedently to his appointment at Dublin in 1883 he was first lecturer and then professor of geology and zoology in University College, Bristol. He has investigated in person many regions of Europe, America, Australia and Polynesia. He was last year sent by the Royal Society in charge of the scientific expedition to Funafuti.

PROFESSOR H. W. HUGHES, M.B., M.S. (Edin.) has been appointed professor of anatomy at King's College, London.

PROFESSOR RUCKER, F.R.S., has been appointed Reade lecturer at University of Cambridge for the present year. Mr. F. F. Blackman, of St. John's College, has been appointed university lecturer in botany. Dr. Arthur Willey has been elected to the Balfour studentship in animal morphology for another year.

DR. JOHN YULE MACKAY, professor of anatomy of the University of Dundee, has been appointed principal of the College.

THE CLOTHWORKERS' COMPANY, of London, has offered £200 for five years, and Miss E. A. Ormerod offers £100 toward the emolument of the Sibthorpe professorship of rural economy at Oxford.

It appears from the report for 1896 of the New York Examination Department of the University of the State of New York, on about 400,000 papers submitted by academic students, that the increase is greater in languages than in science. Not only do English and modern languages show an increase, but also Greek and Latin, whereas six of the eleven branches of science show a decrease. Thus there is an increase of 1,304 papers in first-year Latin and a decrease of 1,322 in geography, of 1,186 in physiology and hygiene, of 907 in physical geography, of 310 in physics, Part I., of 197 in chemistry, Part I., and of 145 in botany. The causes for the decrease of the number of students studying science in our schools at a time when there is an increase in the number of those studying literature and languages should be considered by the State Science Teachers' Association at the next annual meeting.